

Chapter 8

Geographic Disparities in Cancer Survival and Access to Care: Ovarian Cancer in Kentucky

Mary E. Gordinier
Norton Cancer Institute, USA

Carol L. Hanchette
University of Louisville, USA

ABSTRACT

From 1995-2005, ovarian cancer accounted for 2.7% of new cancer cases diagnosed among women in Kentucky and was responsible for 4.7% of female cancer deaths in the state. The five-year survival rate for ovarian cancer is 45% for all stages combined. Multiple studies document a survival advantage for women with gynecologic malignancies when treated by a gynecologic oncologist. The authors used Kentucky Cancer Registry data for the years 1995-2005, geocoded to 5-digit ZIP code, to examine the hypothesis that ovarian cancer survival is higher among patients receiving treatment in areas where gynecologic oncologists practice. Their hypothesis was confirmed. A secondary goal of the study was to identify geographic areas of the state with lower overall access to care. Contrary to the expected pattern of low access to care in the Appalachian region of the state, their analysis indicated that access to successful treatment is a greater issue in the western portion of Kentucky.

INTRODUCTION

In the United States more women die from ovarian cancer than any other gynecologic malignancy, and ovarian cancer ranks fifth as an overall cause of cancer death in women. In the year 2008 it is

estimated that 21,650 new cases of ovarian cancer were diagnosed, and 15,520 women died of the disease (Jemal, Siegel, Ward, Hao, Xu, Murray & Thun, 2008). Approximately 70% of the cases are advanced (Stage III or IV) when they are diagnosed, and no available screening test, including CA-125 or ultrasound, has ever proven effective

DOI: 10.4018/978-1-4666-0258-8.ch008

Table 1. Case distribution and 5-year survival rates by stage of diagnosis (American Cancer Society, 2008)

Stage	Distribution (%)	5-Year Survival Rate
Local	19	92.4
Regional	7	71.4
Distant	68	29.8

in reducing mortality. Optimizing treatment is thus the most effective way to improve survival.

Optimal treatment for ovarian cancer involves a combination of surgery and chemotherapy. Surgery is almost always the first step, providing both a firm diagnosis as well as removing the tumor that causes symptoms. The quality of the initial surgery is a critical determinant of survival, because the amount of tumor remaining is predictive of outcome. A woman with no visible tumor at the completion of surgery will have a 5-year survival rate of approximately 40%, in contrast to a woman with tumor implants 2 cm in size or more remaining, who will have a 5-year survival of 15% or less. (Ozols, Rubin, Thomas & Robboy, 2004).

Gynecologic Oncologists (Gyn Onc) are specialists specifically trained in both the surgical management and the chemotherapeutic treatment of gynecologic cancers. Involvement of a Gyn Onc in the care of patients with gynecologic malignancies confers a significant survival advantage to those patients. Survival of women with advanced ovarian cancer was 26 months when treated by a Gyn Onc, as opposed to 15 months when such a specialist was not involved, according to a study of the statewide, population-based Utah Cancer Registry (Carney, Lancaster, Ford, Tsodikov & Wiggins, 2002). Improved survival outcomes under Gyn Onc treatment have been noted for other gynecologic cancers as well (MacDonald, Sause, Lee, Dodson, Zempolich & Gaffney, 2005).

Table 1 shows case distribution and 5-year survival rates of ovarian cancer for the U.S., by stage of diagnosis (American Cancer Society, 2008). In Kentucky, ovarian cancer accounted

for 2.7% of new cancer cases diagnosed among women from 1995-2005 and was responsible for 4.7% of female cancer deaths in the state (Kentucky Cancer Registry, 2009). These percentages are overshadowed by the burden of lung cancer in Kentucky, which has the highest rates in the nation. The Kentucky incidence rate of 12.5 per 100,000 is lower than the U.S. rate (13.1), but the state has a higher mortality rate: 9.4 vs. 9.0 (Jemal, Murray, Ward, Samuels, Tiwari & Ghafoor, 2005).

A preliminary study of Kentucky gynecologic cancers from 1995-2003 showed no relationships between stage of diagnosis and age, poverty, or percent of population rural (Hanchette & Gordnier, 2007). Using more detailed treatment data, this study examines the following hypothesis: ovarian cancer survival is higher among patients receiving treatment in areas where gynecologic oncologists practice. In the state of Kentucky, Gyn Onc specialists practice almost exclusively in two counties: Jefferson and Fayette, where the cities of Louisville and Lexington are located. Six Gyn Oncs practice in Louisville, four in Lexington (Women's Cancer Network, 2009). These cities house the state's two largest universities, the University of Louisville and the University of Kentucky, respectively. A small number of patients cross the state border to obtain care in Cincinnati (OH), Nashville (TN) and Huntington (WV). Figure 1 is a map of Kentucky counties with Gyn Onc locations and cross-border cities.

The concept of 'access' refers to the ability of patients to use the health services they need, when and where they need them (Joseph & Phillips, 1984; McLafferty, 2003). Locational accessibility is a geographic concept that is often determined

8 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

www.igi-global.com/chapter/geographic-disparities-cancer-survival-access/63598

Related Content

A Geospatial Expose of Flood-Risk and Vulnerable Areas in Nigeria

Chukwudi Gbadebo Njoku, Joel Efiogand Nse-Abasi Ndiyo Ayara (2020). *International Journal of Applied Geospatial Research* (pp. 87-110).

www.irma-international.org/article/a-geospatial-expose-of-flood-risk-and-vulnerable-areas-in-nigeria/253849

Analysis of Mobile Phone Call Data of Istanbul Residents

F. Sibel Salman, Erbil Sivasloluand Burak Memi (2015). *Geo-Intelligence and Visualization through Big Data Trends* (pp. 1-32).

www.irma-international.org/chapter/analysis-of-mobile-phone-call-data-of-istanbul-residents/136098

A Review on BIM and Information Technologies Research in the Construction Industry

Omur Tezcan, Cemil Akcayand Begum Gazioglu (2019). *International Journal of Digital Innovation in the Built Environment* (pp. 1-19).

www.irma-international.org/article/a-review-on-bim-and-information-technologies-research-in-the-construction-industry/253814

A Reflection on the Ph.D. Program in Spatially Integrated Social Science at the University of Toledo

Bhuiyan Monwar Alam, Jeanette Eckertand Peter S. Lindquist (2013). *Geographic Information Systems: Concepts, Methodologies, Tools, and Applications* (pp. 1385-1391).

www.irma-international.org/chapter/reflection-program-spatially-integrated-social/70511

FogLearn: Leveraging Fog-Based Machine Learning for Smart System Big Data Analytics

Rabindra K. Barik, Rojalina Priyadarshini, Harishchandra Dubey, Vinay Kumarand Kunal Mankodiya (2019). *Geospatial Intelligence: Concepts, Methodologies, Tools, and Applications* (pp. 1225-1241).

www.irma-international.org/chapter/foglearn/222944